

# Hidden conditions: detecting delirium

Delirium (also known as ‘acute confusional state’) is common in physically ill old people, affecting up to 50 per cent of those acutely ill in hospital as well as up to 15 per cent postoperatively. In selected groups (eg, those with dementia), the prevalence may rise to nearer 90 per cent<sup>1</sup>. **Professors Stephen Curran** and **John Wattis** discuss the experience, the impact, the detection and differential diagnosis, and the practical management of delirium.

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**D**elirium is the term used to describe a state of fluctuating organic mental confusion, usually of abrupt onset and relatively short duration. It results in impaired attention and concentration, impaired consciousness, disordered perception and visual hallucinations, as well as autonomic features such as sweating and tachycardia<sup>2</sup>. There are predisposing and precipitating causes of delirium and several different factors often interact to produce the clinical picture. Generally its presence adversely affects functional outcome, including cognitive function. For hospitalised patients it increases the length of stay and mortality after discharge. Early detection encourages good treatment. This is twofold: good nursing support based on an understanding of the patient’s experience and effective treatment of the underlying causes. Occasionally, medication may be needed to manage disturbed behaviour and ensure safety but this should not be a first resort.

## Prevalence

Delirium is an elusive diagnosis. Because of its ephemeral nature, its prevalence is hard to estimate. Acute hospital studies have found prevalence rates of 30–50 per cent, sometimes higher<sup>1</sup>. Interestingly, Levkoff *et al*<sup>3</sup> found that 31.3 per cent of patients admitted to a long-term

care facility developed delirium after admission. Community prevalence is likely to be similar among acutely ill old people. An ageing brain is probably a risk factor for delirium.

## Why do patients develop delirium?

Delirium can result from a number of different causes but it is known to be associated particularly with increasing age and dementia. One possibility is that with age the blood/brain barrier becomes more permeable, making older people more susceptible to the effects of circulating drugs and ‘toxins’. It is also known that inhibition of cholinergic mechanisms is a potent inducer of delirium, and patients with dementia already have impaired cholinergic transmitter functions.

The main risk factors for delirium to look out for include:

- > advanced age;
- > pre-existing cognitive impairment;
- > infection and serious illness;
- > dehydration;
- > abnormal urea and electrolytes;
- > drugs with anticholinergic effects;
- > multiple organ systems failure.

A range of conditions can act as predisposing,

**Box 1: Causes of delirium**

- > Hypoxia: severe anaemia, carbon monoxide poisoning, MI, heart failure
- > Infections: especially urine and respiratory
- > Toxic: drugs especially those with anticholinergic effects
- > Withdrawal syndromes: alcohol and benzodiazepines
- > Metabolic: electrolyte disturbances, liver failure, severe acidosis/alkalosis, hypoglycaemia, thyrotoxicosis
- > Vitamin deficiency: thiamine, nicotinic acid
- > Sensory deprivation: visual and auditory impairment
- > CNS: brain trauma, space occupying lesions, ischaemia, neurodegenerative conditions, epilepsy
- > Other: hypo- and hyperthermia

precipitating and perpetuating factors and these are summarised in *Box 1*.

## Clinical features and the patient's perspective

The closest most of us get to the experience of delirium is when we are dreaming. The normal rules of logical thought are suspended and we often feel as though we are trying to make sense of fragmented apparent perceptions. In delirium, the level of consciousness is lowered and varies often from minute-to-minute and hour-to-hour. Perception is impaired and patients lose a sense of the temporal relationships between events. Sometimes they experience hallucinations (mainly visual). In an attempt to make sense of this experience they may develop false beliefs, sometimes of delusional intensity. These may cause them to become less co-operative with treatment.

If the patient is put through a series of ill-explained transitions (as often happens in admission to hospital) this only serves to increase confusion and reduce co-operation. Delirious patients often feel anxious or afraid. They may become agitated, seeking to escape from unfamiliar surroundings or even lashing out at perceived threats. Understanding this experience is the key to good nursing and general management of patients with delirium.

**Box 2: The confusion assessment method** (*adapted from Laurila JV*)<sup>5</sup>

- > Acute onset and fluctuating course: This feature is assessed by asking an informant 'Is there evidence of sudden change from the patient's previous mental state?' and 'Did the abnormal behaviour tend to fluctuate (come and go, increase and decrease) through the day?'
- > Inattention: (Also usually assessed by asking an informant.) 'Did the patient have difficulty focusing attention, were they easily distractable or did they have difficulty keeping track of the conversation or what was happening?'
- > Disorganised thinking: 'Was the patient's thinking disorganised, was their conversation rambling or incoherent, was there unpredictable switching from subject to subject?'
- > Altered level of consciousness: This feature is shown by any answer other than 'alert' to the question: 'Overall, how would you rate this patient's level of consciousness? (Alert [normal], vigilant [hyperalert], lethargic [drowsy, easily aroused], stuporose [hard to arouse] or comatose [unarousable])?'

## Detection and diagnosis

Practitioner awareness and alertness is the key. We should expect to find delirium in old people with acute illness, especially if they have pre-existing dementia. It should also be actively sought in older patients postoperatively, especially after emergency surgery (eg, for a fractured neck or femur). Indeed, patients with dementia may become delirious with relatively minor physical problems like constipation. When you see an acutely ill old person, look for delirium. The key sign is a degree of confusion related to a variable level of consciousness. Sometimes this is evident even over a relatively brief interview, with the patient being able to retrieve memories at one point that become inaccessible later. Performance on tests of memory may also vary over a few minutes or hours. Doctors, nurses and others working with vulnerable old people need to detect delirium if management is to be optimised. For example, there is little point leaving a prescription for an antibiotic with an old person living alone if delirium is going to cause them to forget to collect or take the medication.

## Screening tools

The Confusion Assessment Method (CAM) of Inouye *et al*<sup>4</sup> has been widely used in research and has been validated in Europe as a screening tool

for delirium<sup>5</sup>. It is a simple algorithm with four questions (*see Box 2*). The diagnosis of delirium requires the presence of features one and two with either three or four. These features reflect the diagnostic criteria in the American Diagnostic and Statistical Manual versions III-R and IV (DSM IV, 1994)<sup>6</sup>. This test has only moderate sensitivity and specificity, but if the questions were asked about every acutely ill older person they would undoubtedly lead to a higher rate of diagnosis of this often hidden condition. These predisposing and precipitating factors should be considered in assessing the risk of any patient becoming delirious and in seeking the underlying cause of any delirious episode diagnosed. The precipitating factors may also become perpetuating factors if not found and dealt with.

### Differential diagnosis

There is a twofold task. One is the differential diagnosis of delirium from other conditions causing confusion. Here the main question is whether the confusion is of acute or acute on chronic onset. These patterns suggest,

respectively, delirium or delirium superimposed on dementia. The other task is the differential diagnosis of the underlying cause. A detailed consideration of the second is beyond the scope of this article, although we will consider some key points, always remembering that a clear cause cannot always be pinned down. The differential diagnosis of delirium from other causes of confusion depends on the history, mental state and physical examination – and sometimes on laboratory tests and other investigations.

An informant history is invaluable as patients cannot give a coherent and accurate account of themselves. The first key question is: 'How quickly has this confusion developed?' Alzheimer's disease characteristically develops gradually and relatives often find it difficult to identify when the problem started. However, a sudden worsening in confusion in a person with established Alzheimer's disease may be due to a superimposed delirium. Other conditions that come on relatively quickly and cause delirium include stroke and the fluctuating confusion found in subdural haematomas and other neurological conditions.

**Figure 1: Delirium and dementia - differential diagnosis**  
(adapted from Wattis & Curran, 2006)

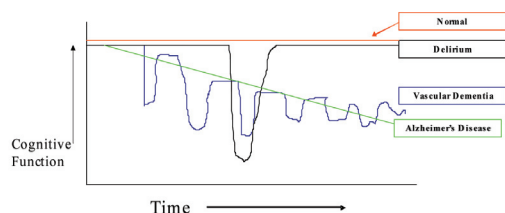


Figure 1 gives a stylised summary of the time course of various conditions that cause confusion. Dementia with Lewy bodies (not represented in the figure) is also characterised by fluctuating levels of confusion, hallucinations and often extrapyramidal signs so it may be difficult to distinguish from delirium. This is where the next key question helps: ‘Is the patient physically unwell?’ Any acute physical illness automatically increases the likelihood of delirium. The final key question is ‘Could this be due to drugs, or drug withdrawal (including alcohol)?’ Strong analgesics, particularly opiates, drugs with anticholinergic effects, drugs with sedative effects and alcohol and benzodiazepine withdrawal can all cause delirium.

The mental state examination includes careful observation of general appearance and behaviour, including fluctuating consciousness, attention and concentration and simple testing of memory. Repeated examinations, especially in hospital where this is more feasible, can help clear up cases of doubt and may enable documentation of fluctuations in cognitive function. Physical examination should focus on likely causes of acute confusion, particularly signs of any acute infection, focal neurological problems or heart failure. Investigations may be needed to confirm clinical diagnosis. They may also help where the clinical diagnosis is not clear. A full blood count will often show an elevated white cell count, pointing to infection and other investigations such as chest X-ray, electrocardiogram (ECG), and culture and sensitivity on a urine sample may help with specific causes. CAT or magnetic resonance imaging (MRI) scan of the head is justified occasionally if an intracranial cause is suspected.

## Practical management

The patient’s personality and previous experience will affect how he or she copes with the experience of delirium. Some may slip easily into the ‘patient

role’ and trustingly accept the help they are offered. Others may rant and rail against what seems to be happening to them. Rarely, someone who has previous bad experiences (for example, in a wartime concentration camp) may try to make sense of present experience in the light of the past and become very paranoid. Understanding the patient as a person helps us deal appropriately with these issues.

## Acute management

The underlying physical illness must be properly treated and other symptoms, such as pain or fever, adequately controlled. Other physical needs must also be considered. The confused patient may not be able to clearly express his or her need to go to the toilet. Attempts to make themselves understood may be discounted by busy staff. Preventable incontinence may occur, followed by catheterisation, a traumatic procedure for someone who cannot fully understand what is going on. Delirious patients lose the capacity to regulate their own lives and so issues like hydration, diet and the taking of necessary medication must be addressed by carers.

## Medication

Some medication (eg, medication for incontinence and tricyclic antidepressants) causes or worsens confusion. Medication should be limited to what is strictly necessary to cope with current problems. In a patient with a history of severe depression or psychosis, antidepressant or antipsychotic medication will usually have to be continued. Sometimes, with expert help, a product less likely to cause or worsen confusion may be selected. Medication to control disturbed behaviour in delirium is a last resort. In most cases, good general management will make it unnecessary. Very small doses of haloperidol (0.5–1mg up to twice daily) may occasionally be helpful but higher doses can be dangerous. Haloperidol can be given intramuscular as well as orally but, because of first pass metabolism, is considerably but unpredictably more potent when given parenterally. Alternatives are restricted following recent advice from the Committee on the Safety of Medicines and the Federal Drugs Administration. Despite this, there may be occasions when the short term use of low dose atypical antipsychotics can be justified if the patient cannot tolerate the extrapyramidal effects of haloperidol. Risperidone is probably the best researched, but should only be used short term with caution in view of the occasional precipitation

## Key points

- > Delirium is often undetected.
- > A careful assessment and differential diagnosis is essential.
- > The CAM screening tool can help to increase medical awareness and find cases.
- > Treatment of underlying causes should be combined with a safe and supportive environment.
- > Antipsychotic medication is a last resort and should be used with great caution.

of hypotensive episodes. This is especially relevant in those with cerebrovascular disease.

Antipsychotics may help the symptoms but in doing so may mask the underlying physical disease.

## Prevention

There is not a strong evidence base, yet it seems reasonable to screen patients attending for elective major surgery for delirium risk factors in order to deal with any correctable problems and to increase awareness of the possibility of postoperative delirium in the individual patient. It makes sense to take an accurate alcohol and drug history, and to assess for dehydration in the acutely ill patient.

In considering how best to manage somebody with delirium we need to take into account the environment, any sensory disabilities, the patient's physical health needs and any needs related to brain dysfunction, personality and previous experience. We also need to consider medication. If the underlying physical illness is relatively mild and the patient is well supported at home, then this is the ideal place to treat them. Familiar surroundings and people reduce the risk of worsening confusion. If extra help has to be brought in to care for the patient, carers should be aware that the patient may have difficulty accepting 'strangers' at home and efforts should be made to ensure a familiar person is present to explain to the patient (repeatedly, if necessary) what is going on. If, because of the severity of the underlying illness or lack of support at home, the patient has to be admitted to an intermediate care facility or to hospital, then every effort should be made to manage that transition well. A familiar person should travel with the patient, if possible, and repeated explanation should be given about what is happening. The patient should not be left alone (especially for long periods in the A&E department). The number of different

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staff dealing with the patient should be kept to a minimum. All should treat the patient with respect and remember that it may be necessary to repeat information and to make allowances for sensory impairment. Impaired vision and hearing can reduce the patient's capacity to take in information and to adjust to new environments. Special care should be taken to ensure that explanations are heard and, as far as possible, understood by the patient. Any necessary hearing aids or spectacles should be provided and ambient lighting should be good to improve patients' chances of orientating themselves.

## Conclusion

Delirium is important to detect and treat. Untreated, the mortality is nearly 15 per cent (14.2 per cent vs 4.8 per cent in controls) and this rises to 20.7 per cent (10.6 per cent in controls) after six months. Untreated it also significantly increases the length of stay in hospital (20.7 vs 8.9 days)<sup>7</sup>. All older patients with sudden onset of confusion – or even just with an acute illness – should be screened for delirium. When managing a patient with delirium, careful attention should be paid to the patient's need for a safe and supportive environment, and their need for good communication. The underlying illness (or other cause) and the patient's physical needs should also be taken into consideration. Good general management involves understanding that the patient is an individual and attempting to understand their unique experiences. In terms of medication, regimens should be kept simple; antipsychotic medication, such as haloperidol, should only be used as a last resort.

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